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SIMILAR EFFECT OF AUTOLOGOUS AND ALLOGENEIC CELL THERAPY FOR ISCHEMIC HEART DISEASE: RESULTS FROM A META-ANALYSIS OF LARGE ANIMAL STUDIES

Poster Contributions
Hall C
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Background: In regenerative therapy for ischemic heart disease, use of both autologous and allogeneic stem cells have been investigated. Autologous cells can be applied without immunosuppression but availability is restricted and cells have been exposed to risk factors and aging. Allogeneic cell therapy enables pre-operative production of potent cell lines and immediate availability of cell products, allowing 'off the shelf' therapy. It is unknown which cell source is preferred with regard to improving cardiac function. Therefore, we performed a meta-analysis of pre-clinical data of cell therapy for ischemic heart disease.

Methods and Results: A systematic literature search was performed to identify publications describing controlled pre-clinical trials of unmodified stem cell therapy in large animal models of acute or chronic myocardial ischemia. Data from 82 studies involving 1415 animals showed a significant difference in mean left ventricular ejection fraction (LVEF) in treated compared to control animals (8.3%, SEM 0.6, $p<0.001$). Meta-regression showed that this improvement in LVEF was similar in autologous (8.8% SEM 0.7 n=981) and allogeneic (7.3% SEM 1.5 n=331) ($p=0.3$) cell therapy.

Conclusions: Autologous and allogeneic stem cell therapy for ischemic heart disease leads to a similar improvement in LVEF in large animal models of myocardial ischemia. These results are important in view of practical issues for future clinical trials.

Forest plot of mean difference in LVEF(%) per cell source